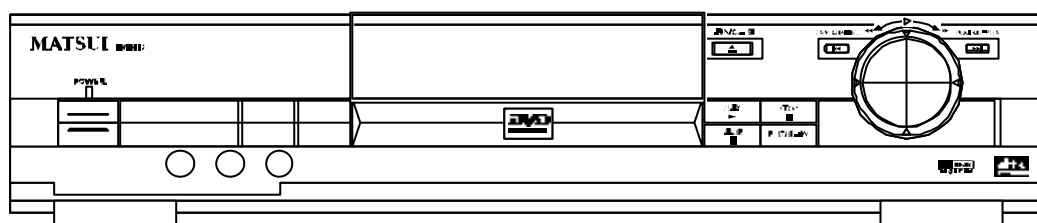




SERVICE MANUAL



MATSUI DVD110 DVD Player Version 1.0



This Manual is only available in Electronic format.

MATSUI DVD110

DVD Player

SERVICE MANUAL

Specifications are subject to change without notice.

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MASTERCARE TECHNICAL CENTRE**

TITLE :

J711 (DVD) Dixon Product Specification

EFF. DATE : Oct. 12, 1999**PAGE** 1 **OF** 3**A. GENERAL FEATURES**

- DVD-Video and Audio CD Compatible
- MPEG-2 Multi-Channel, Dolby Digital™ (AC3) & PCM Digital Audio Output
- Dolby Digital™ (AC3) Stereo Down Mix Output
- Dolby Digital™ (AC3) Audio Decoder Available
- DTS Audio Digital Passthrough
- Multi-Angles Disc Supported
- On Screen User-Friendly Graphical Setup Menus
- Multi-Disc Resume Memory
- Parental Control with Pin Lock
- Full Trick Modes Supported
- Active Navigation™
- Multi-Colour Front Panel VFD
- Job Shuttle Front Panel Control
- Full Function IR Remote Control
- Universal Voltage Switching Mode Power Supply
- Scart Connector with RGB Output

B. KEY FUNCTIONS

- General
 - Stop / Play / Pause
 - Fast Forward / Backward
 - Slow Forward / Backward
 - Title / Chapter / Track Select
 - Skip Next / Previous
 - Repeat Track / All
 - A-B Repeat
 - Search (Title / Chapter / Time / Track)
 - Program
 - Screen Saver
 - Job Shuttle Control (Front Panel)
- DVD
 - Multi-Angle Selection
 - Audio Selection
 - Subtitle Selection
 - Aspect Ratio Conversion (16:9, 4:3 letterbox, 4:3 pan scan)
 - Parental Control
 - Disc Menu Support (Title / Root)
 - 4-Speed Fast Forward / Backward
 - 4-Speed Slow Forward / Backward

TITLE :

J711 (DVD) Dixon Product Specification

EFF. DATE : Oct. 12, 1999**PAGE** 2 **OF** 3

- Audio CD Time display (Total / Track)
3-Speed Fast Forward / Backward

C. ELECTRICAL SPECIFICATION**Power Supply**

AC Input Range	90-270 V~, 50/60 Hz
Power Consumption	40W max.
Fuse Protection	T1.25A, 250 VAC
Standby Power	20W max.
Compliance with EN Norms & UL	CE Version : EN60065, EN55013 part 2
Safety and EMC Standards	UL Version : FCC Part15 Subpart B ANSI/UL 6500 / CAN/CSA E65-94

Front End (Loader)

Laser Type	Semiconductor
Diameter	12cm / 8cm
<i>Playing Time (12cm)</i>	
Single Layer	2.12 h
Dual Layers	4.01 h
Two Sides, Single Layer	4.26 h
Two Sides, Dual Layers	8.02 h

Video

Decoding	MPEG-2 for DVD MPEG-1 for VCD DVD 720 X 576 VCD 325 X 288 @50Hz DVD 720 X 480 VCD 352 X 240 @60Hz
DAC	10 Bits
Video Formats	4:3 / 16:9
Output	CVBS, S-VHS (PAL / NTSC)
K Factor	≤3%
Video S/N	> 56dB
Differential Phase	< ±5°
Differential Gain	< ±5%
Connector	RCA Jack, S-VHS, Scart

TITLE :

J711 (DVD) Dixon Product Specification

EFF. DATE : Oct. 12, 1999**PAGE** 3 **OF** 3**Audio***Digital Section :*

Decoder

MPEG – 2

Dolby Digital

DTS Passthrough

DAC

24 Bits / 48 KHz (96KHz)

Output Level

200 mVrms +0/-2dB @ 1 KHz -20dBfs

THD + N

> -70dB

Connector

RCA Jack X 2, Scart

Digital Output

SPDIF Coaxial

Front Panel

VFD Display

6 Grids X 16 Segments

No. of Keys

7 Keys (Play, Stop, Fast/Slow, Pause,
Open/Close, Skip Next, Skip Previous)

Jog Shuttle

4 Steps Forward & Backward

Power Switch

Mechanical Mains Switch

IR Remote Control

Effective Range

> 8 Metre

No. of Keys

31

Battery (1.5V)

AAA X 2

D. MECHANICAL SPECIFICATION

Dimension

91 X 430 X 314 mm (H X W X D)

Weight

3.8 Kg

End of Product Specification

The block also handles overspeed processing for all systems. The capturing of CD-DA sectors is based on a flywheel timer to improve robustness by concealing errors in the subcode stream. For DVD the data, having had sector headers removed, then passes through a DVD conformant de-cryption stage and is written into any of the system memories using a programmable DMA engine. When a subcode stream is present it is locally buffered, by subcode block and can be read by the CPU for subsequent processing, if required.

This unit includes three separate pulse width modulator (PWM) generators using a shared counter, and three timer compare and capture channels sharing a second counter.

The PWM counters are 8-bit with 8-bit registers to set the output high time. The capture/compare counter and the compare and capture registers are 32-bit.

40 bits of parallel I/O are provided. 34 of them are connected to actual PIO pins. Each bit is programmable as an output or an input. The output can be configured as a totem pole or open drain driver. Input compare logic is provided which can generate an interrupt on any change on any input bit.

III.1.9 - MPEG Video decoder

The video decoder is a real-time video compression processor supporting the MPEG-1 and MPEG-2 standards at video rates up to 720 x 480 x 60 Hz and 720 x 576 x 50 Hz. Picture format conversion for display is performed by vertical and horizontal filters. User-defined bitmaps may be superimposed on the display picture through use of the on-screen display function.

The digital encoder which is integrated in the ST5505 converts a multiplexed 4:2:2 YUV stream into a standard analog baseband PAL/NTSC signal and into RGB analog components. The encoder can also perform closed-caption, CGMS or teletext encoding

The decoder directly accepts MPEG-2 PES streams as input. The decoder is capable of supporting IEC6958-IEC61937 formatted outputs for AC-3 and MPEG audio, linear PCM (left & right, 16, 18, 20 & 24 bits), zero output (Mute mode) and PCM audio.

The intention of the ST5505 architecture is to allow as much flexibility as possible for a user to design a memory system and arrange data in a manner which best fits the system needs.

The ST20 memory arbiter can make requests into the SDRAM arbiter which are treated as the highest priority. A mechanism is implemented to ensure that the microprocessor cannot block out completely the MPEG decoder from the SDRAM.

- The CPU arbiter
- The Communications (DMA) arbiter
- The ST20 arbiter
- The SDRAM arbiter

The communications arbiter schedules all the requests for access to the ST20 arbiter and consequently the memory system coming from the DMA engines.

Figure 2 : STi5505 Top-Level Architecture

The block diagram illustrates the ST20 system architecture. At the center is the **ST20 ARBITER & MEMORY CONTROLLER**. To its left, a vertical stack of components includes **PERIPHERALS**, **FRONT-END INTERFACE** (containing a **DMA**), **SDAV/P1394 INTERFACE** (containing a **DMA**), and **GENERIC EMI**. To its right is the **CACHE SUBSYSTEM**, which contains **RID**, **TAP**, **ICACHE**, **SRAM**, **DCACHE**, **REFILL CONTROL**, **DIAGNOSTIC CONTROLLER**, and **CPU ARBITER**. Below the central controller are **SMI**, **SDRAM BLOCK MOVE**, **CD FIFOs**, and **COMMAND I/F**. At the bottom, a row of components includes **SDRAM I/F**, **DENC**, **OSD AND SP DECODER**, **VIDEO DECODER**, and **AUDIO DECODER**. A **COMMUNICATIONS ARBITER** is positioned above the central controller, connected to **DMAs** (MPEG, MPEGL, TELETEXT, DEBUG, BLOCK MOVE) and a **CLOCK GENERATION** block. The entire system is flanked by **PADS** on both sides.



STi5505 (Rev. BB)

DVD BACKEND DECODER -WITH INTEGRATED HOST PROCESSOR

PRODUCT PREVIEW

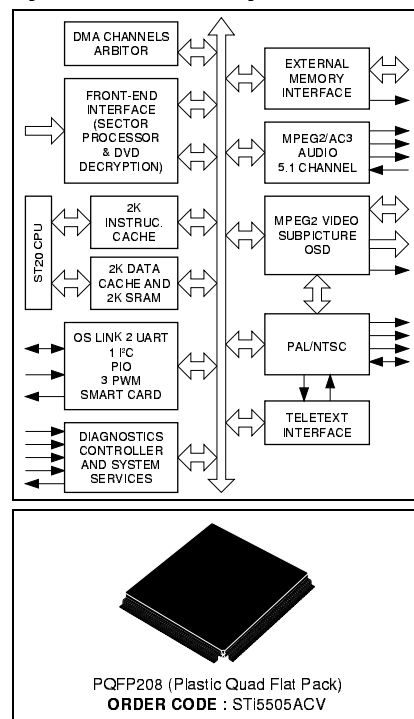
- INTEGRATED 32-BIT RISC HOST CPU
 - 2KBYTES INSTRUCTION CACHE, 2KBYTES DATA CACHE/SRAM
 - 50K DHRYSTONES/SEC (2.1) - 50MHz
- VIDEO DECODER
 - FULLY SUPPORTS MPEG-2 MP@ML
 - MEMORY REDUCTION - PAL IN 12MBITS
- SUBPICTURE DECODER
- HIGH PERFORMANCE ON-SCREEN DISPLAY
- AUDIO DECODER
 - 5.1 CHANNEL DOLBY® DIGITAL / MPEG-2 MULTI CHANNEL DECODING
 - DOWNMIX TO STEREO OR TO DOLBY PRO-LOGIC COMPATIBLE OUTPUTS FOR MPEG-2 AND DOLBY DIGITAL
 - IEC6958 - IEC61937 COMPATIBLE OUTPUT
 - LPCM (DVD) MODE SUPPORTED
 - 6 CHANNELS OUTPUT
- PAL/NTSC ENCODER
 - MACROVISION® 7.01/6.1 COMPATIBLE
 - TELETEXT, AND CLOSED CAPTION
- HIGH PERFORMANCE SDRAM INTERFACE
- PROGRAMMABLE MEMORY INTERFACE FOR DRAM, ROM, PERIPHERALS ETC.
- FRONT-END CHANNEL IC INTERFACE
 - DVD, VCD AND CD-DA COMPATIBLE
 - DSS - DVB BISTREAMS
 - SERIAL AND PARALLEL INTERFACES
 - HARDWARE SECTOR FILTERING
 - INTEGRATED CSS DECRYPTION AND TRACK BUFFER
- INTEGRATED PERIPHERALS
 - 2 UARTS, 1 I²C CONTROLLER, 3 PWM OUTPUTS, 3 TIMERS, 3 CAPTURE TIMERS, SMART CARD
 - 34 BITS OF PROGRAMMABLE I/O
 - OS LINK
- PROFESSIONAL TOOLSET SUPPORT
 - ANSI C COMPILER AND LIBRARIES
 - OPERATING SYSTEMS SUPPORT
 - ADVANCED DEBUGGING TOOLS
- 208 PIN PQFP PACKAGE

DESCRIPTION

The STi5505 provides a very highly integrated back-end solution for DVD and combo DVD-DVB (Set Top Box) applications. The STi5505 incorporates a host CPU which handles both general application (DVD navigation, CD-DA, VCD, DVB) and drivers of the different embedded peripherals (audio/video, subpicture decoders, OSD, PAL/NTSC encoder...).

The STi5505 offers one of the best cost-effective (memory savings, internal peripherals availability) solution to DVD-DVB applications with rapid time to market (Reference design, DVD-DVB Software Toolkit).

Figure 1 : General Block Diagram

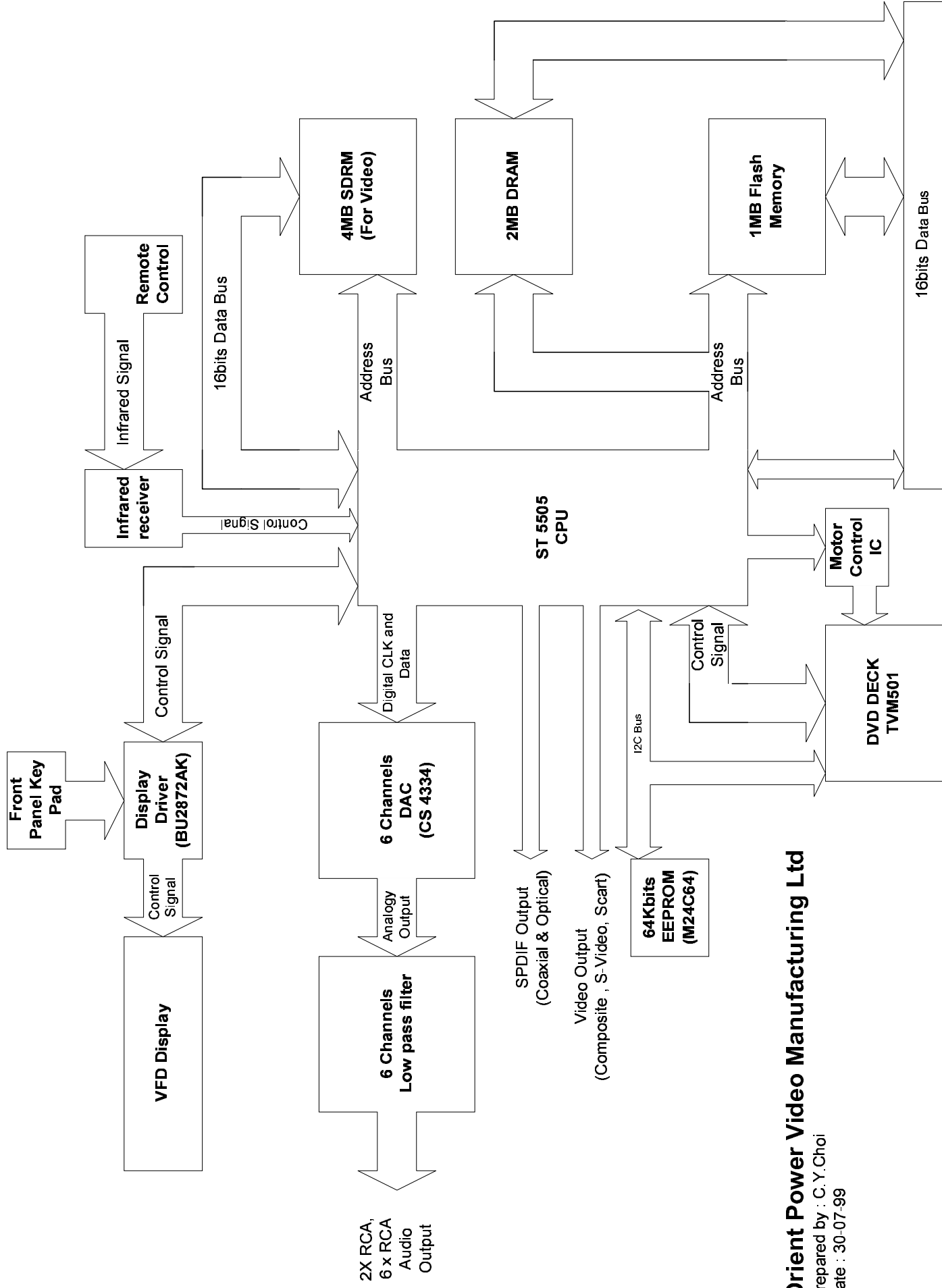


PQFP208 (Plastic Quad Flat Pack)
ORDER CODE : STi5505ACV

STi5505 (Rev. BB)

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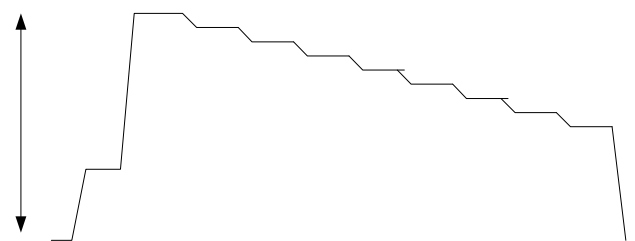
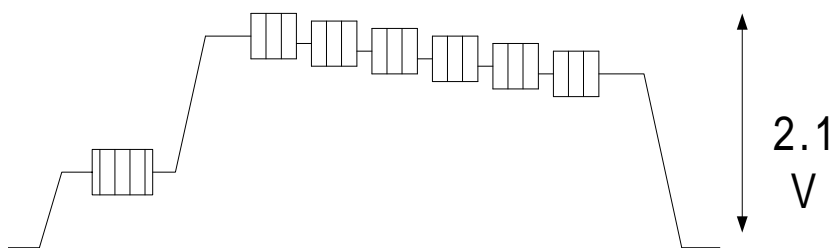
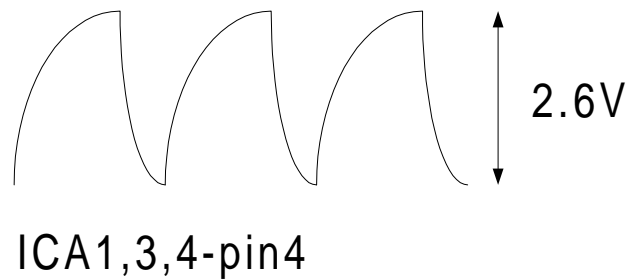
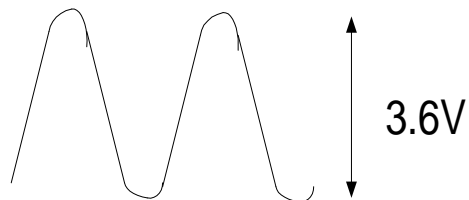
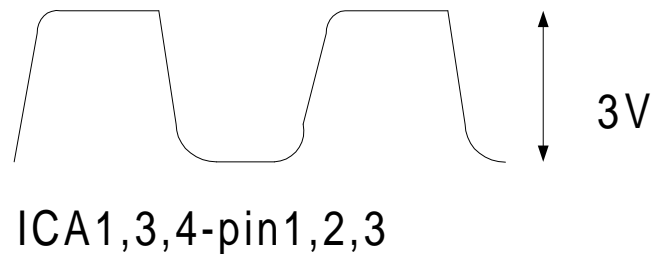
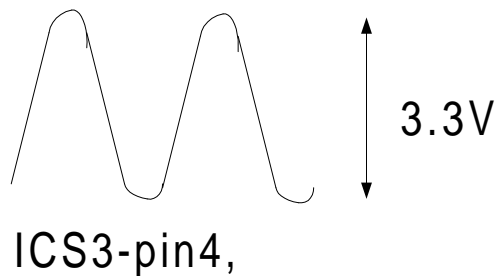
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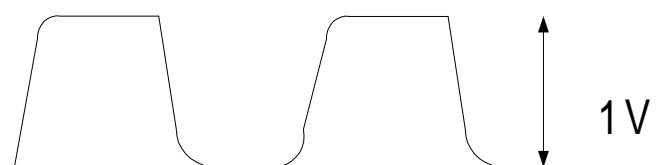
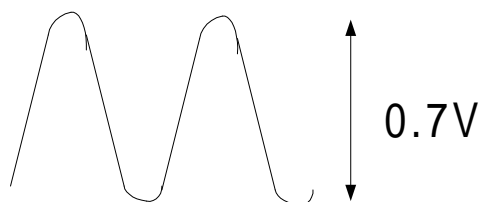
Orient Power Video Manufacturing Ltd

Prepared by : C.Y. Choi
Date : 30-07-99

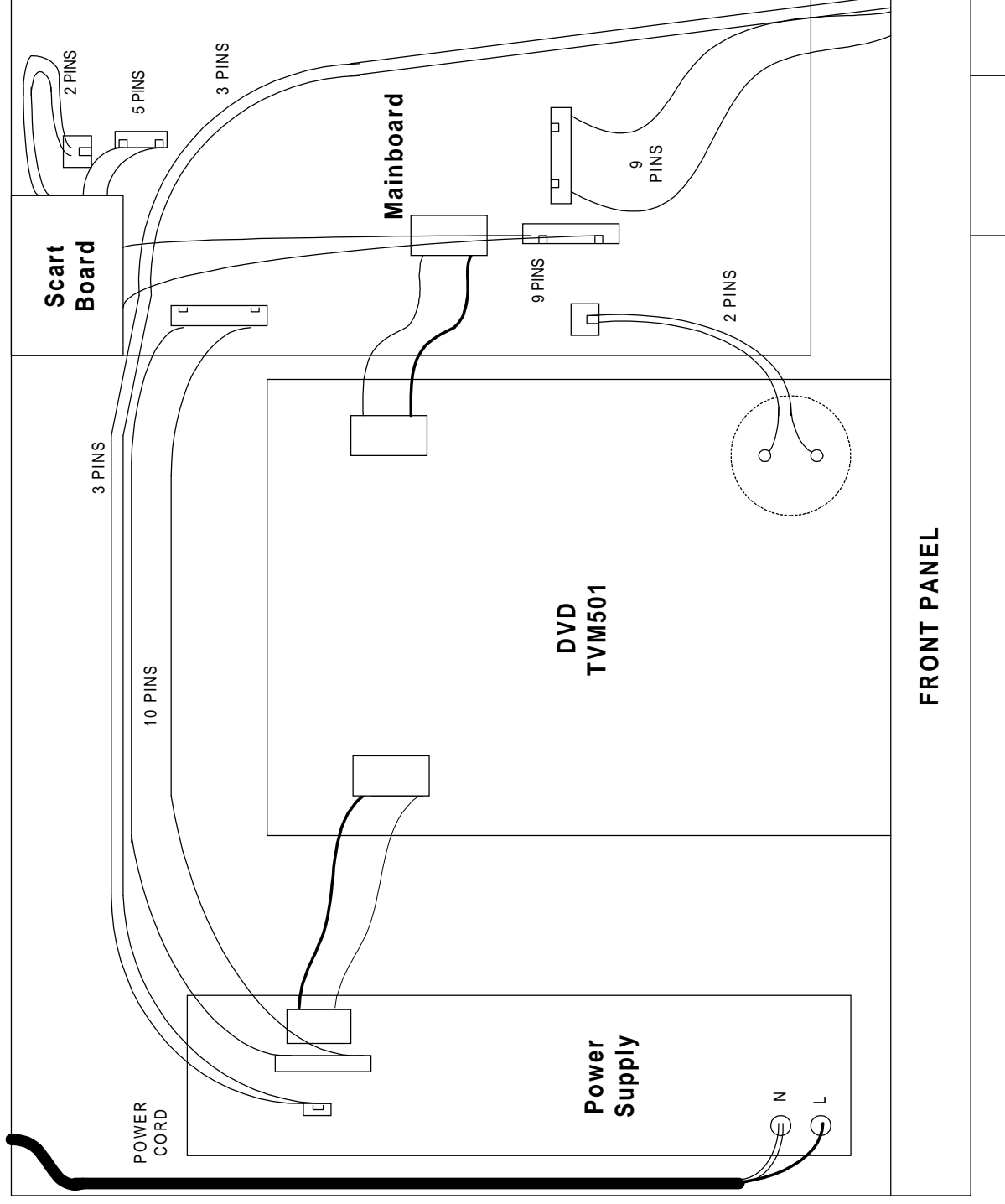
J711 DVD PLAYER BLOCK DIAGRAM



**No S-Video load



** No SPDIF load

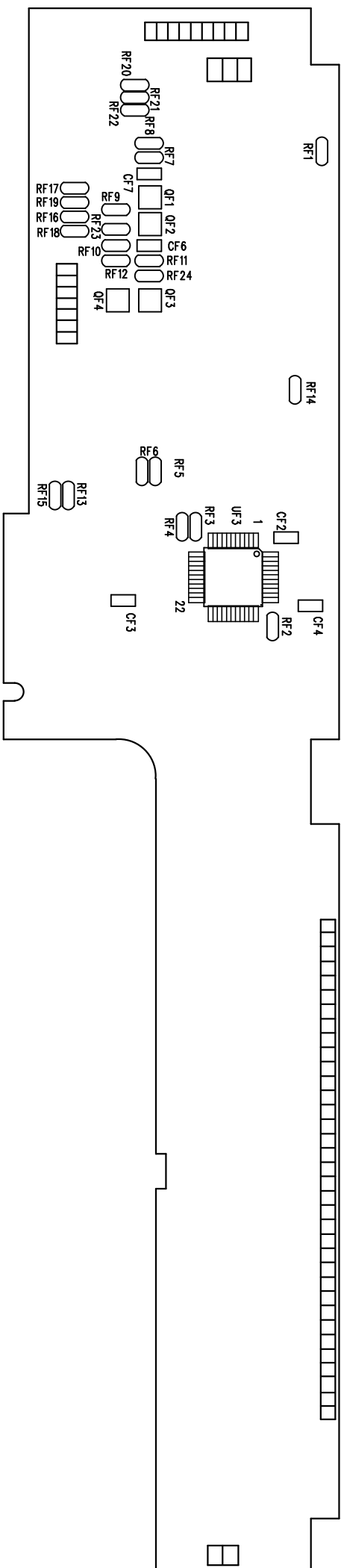


J711 DVD PLAYER WIRING DIAGRAM(TOP VIEW)

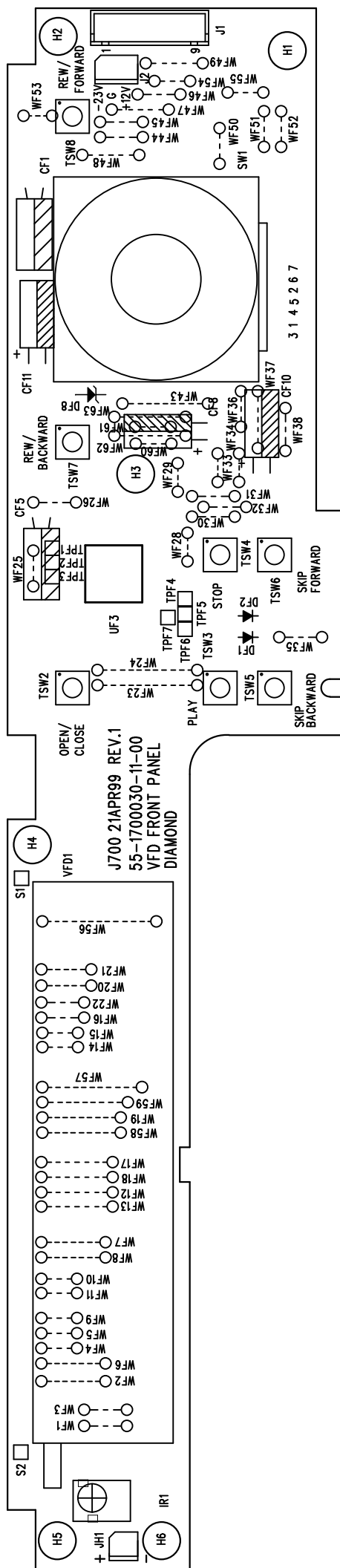
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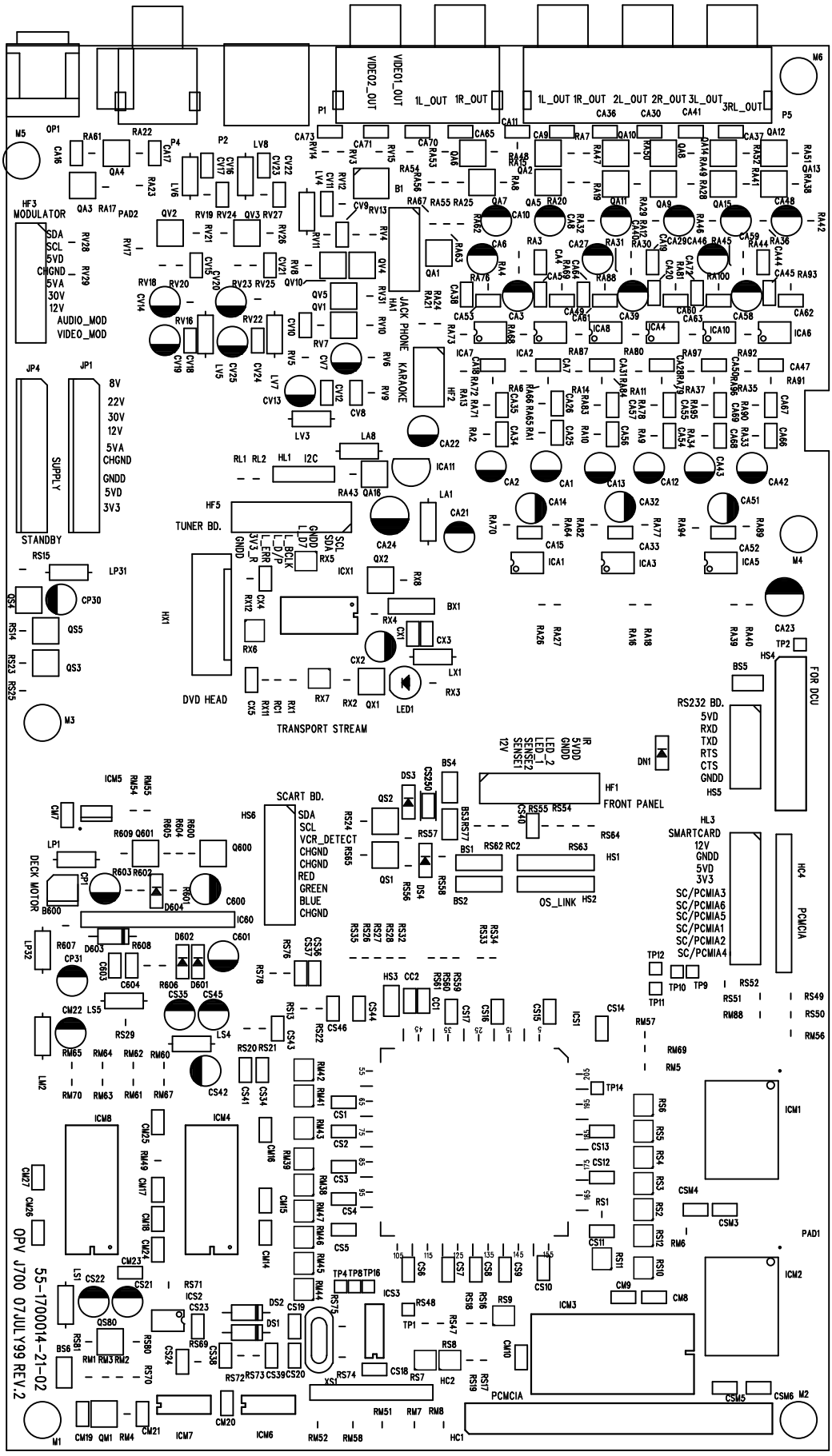


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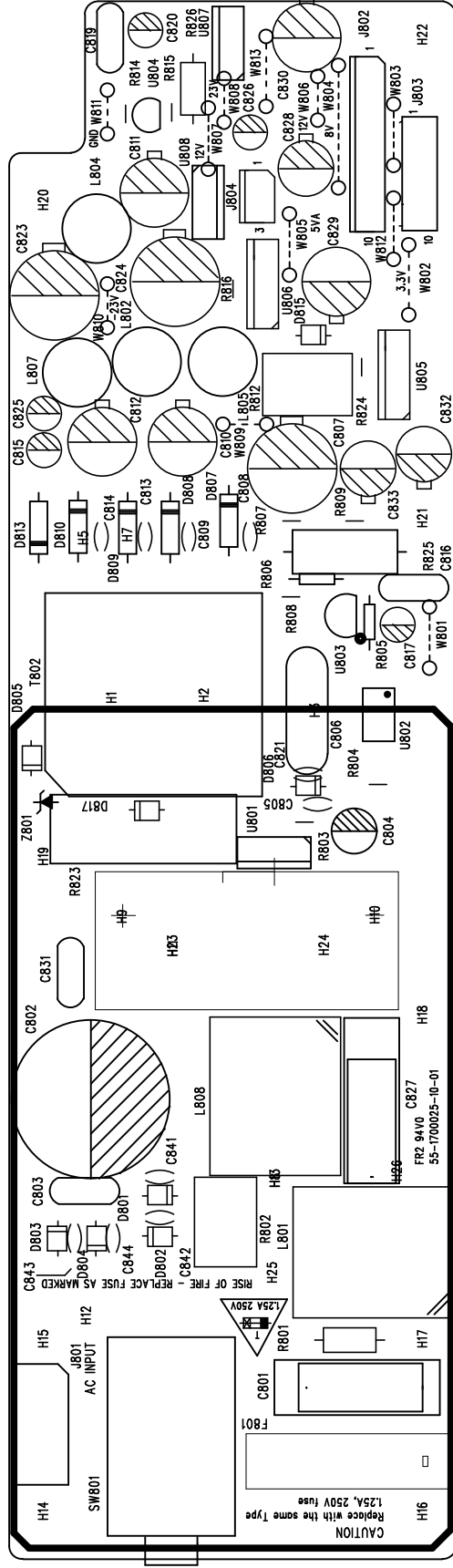


SILK SCREEN

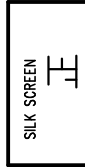
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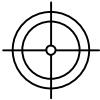
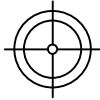
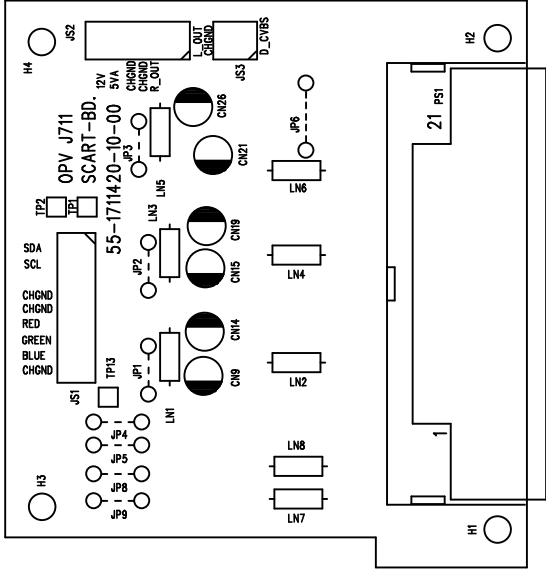
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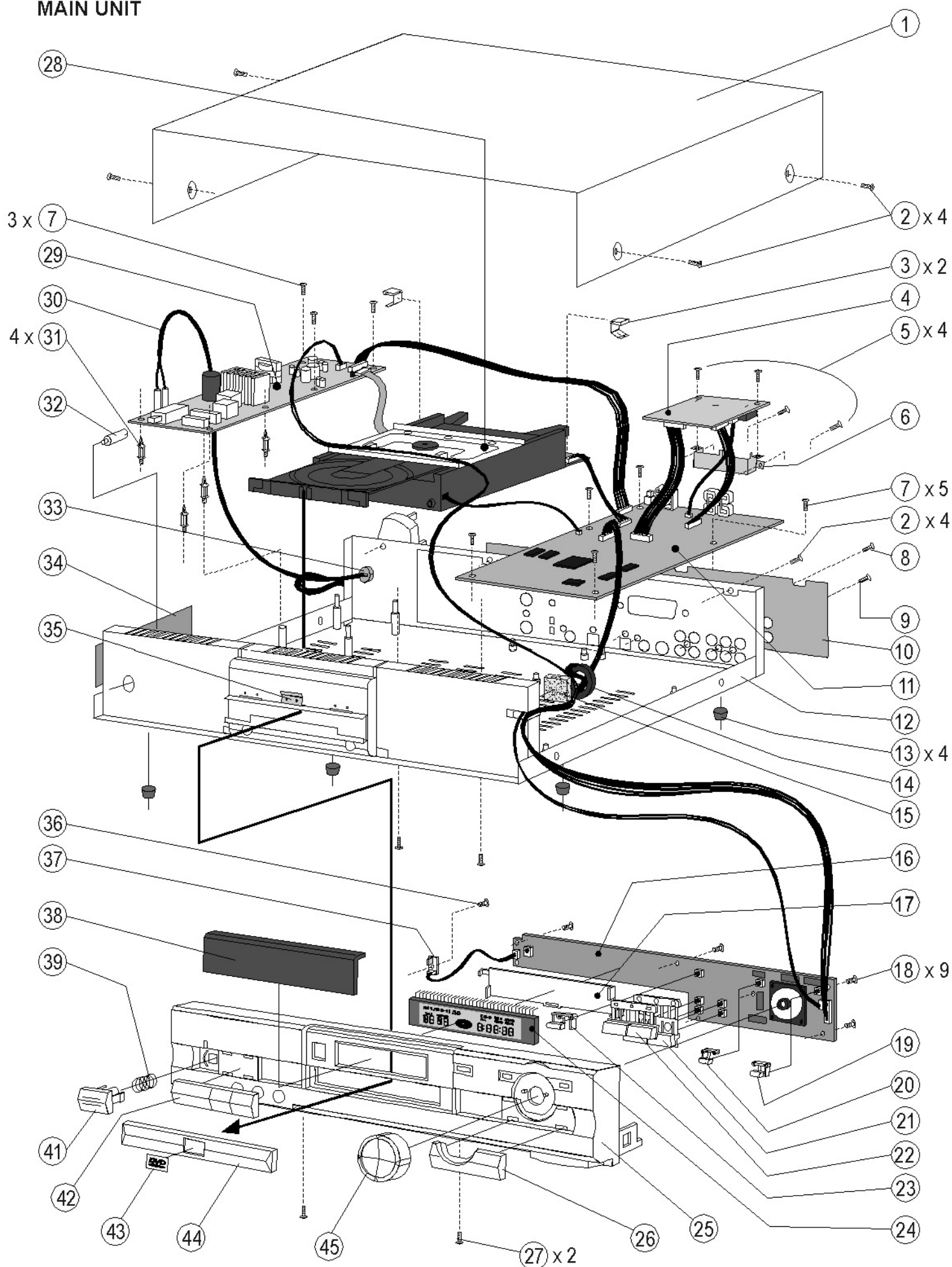


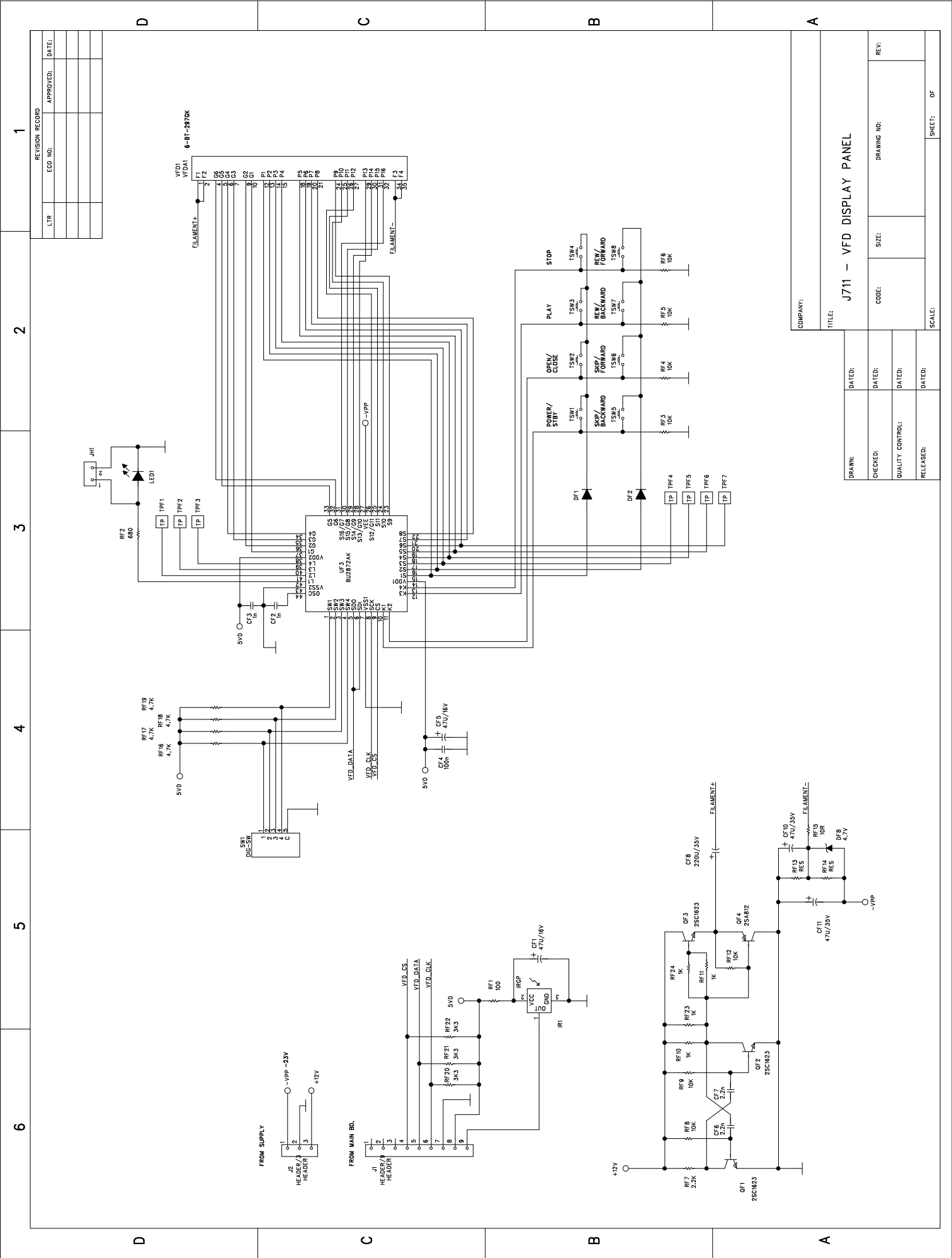




MATSUI (DVD110) EXPLODED VIEW

MAIN UNIT





6

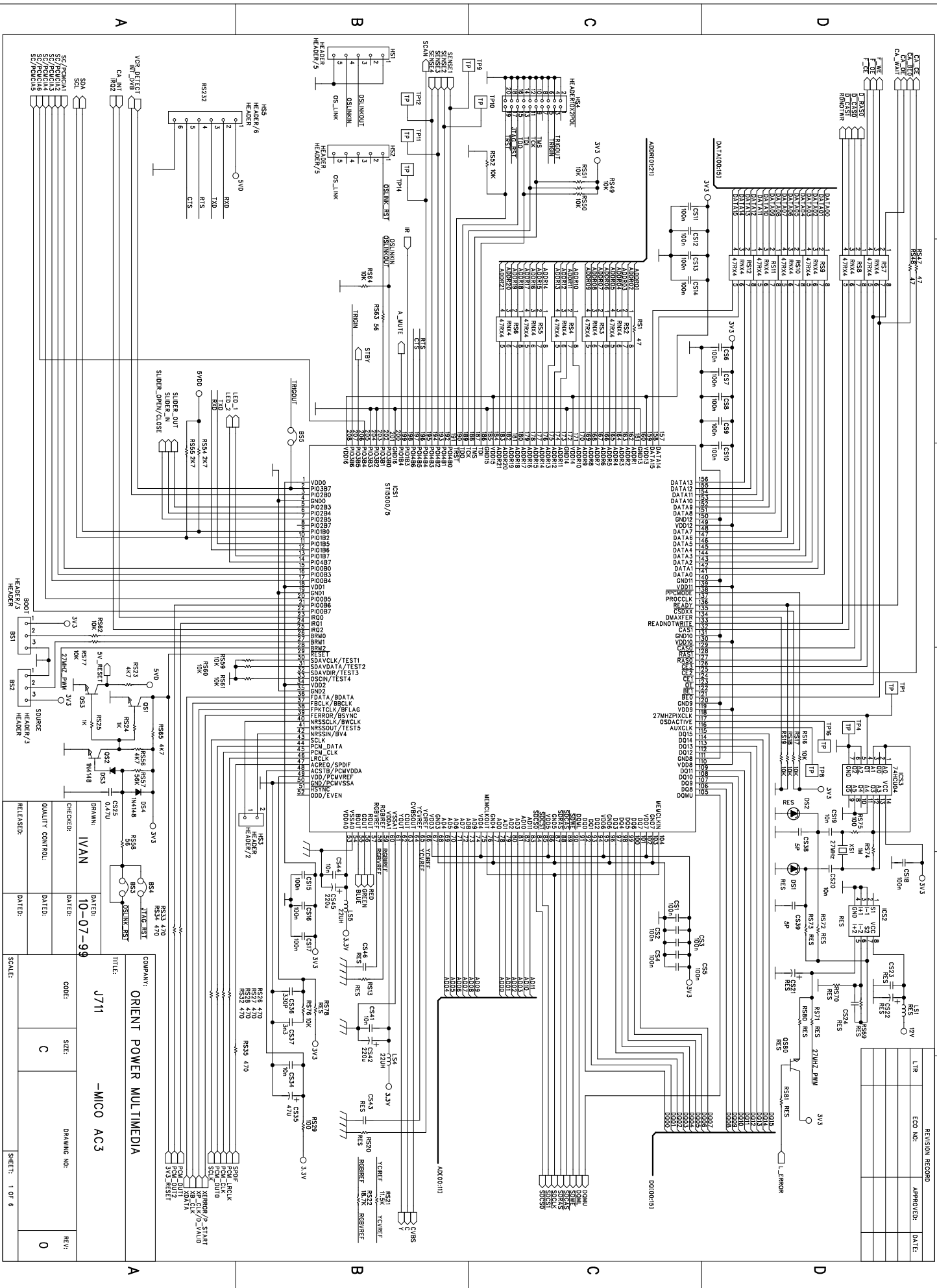
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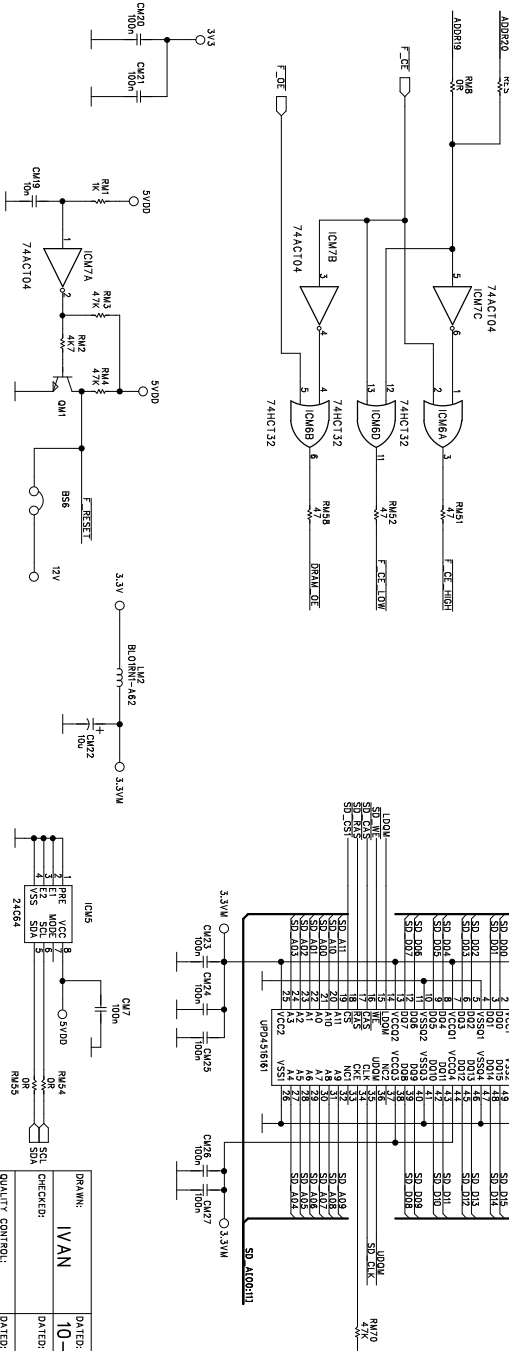
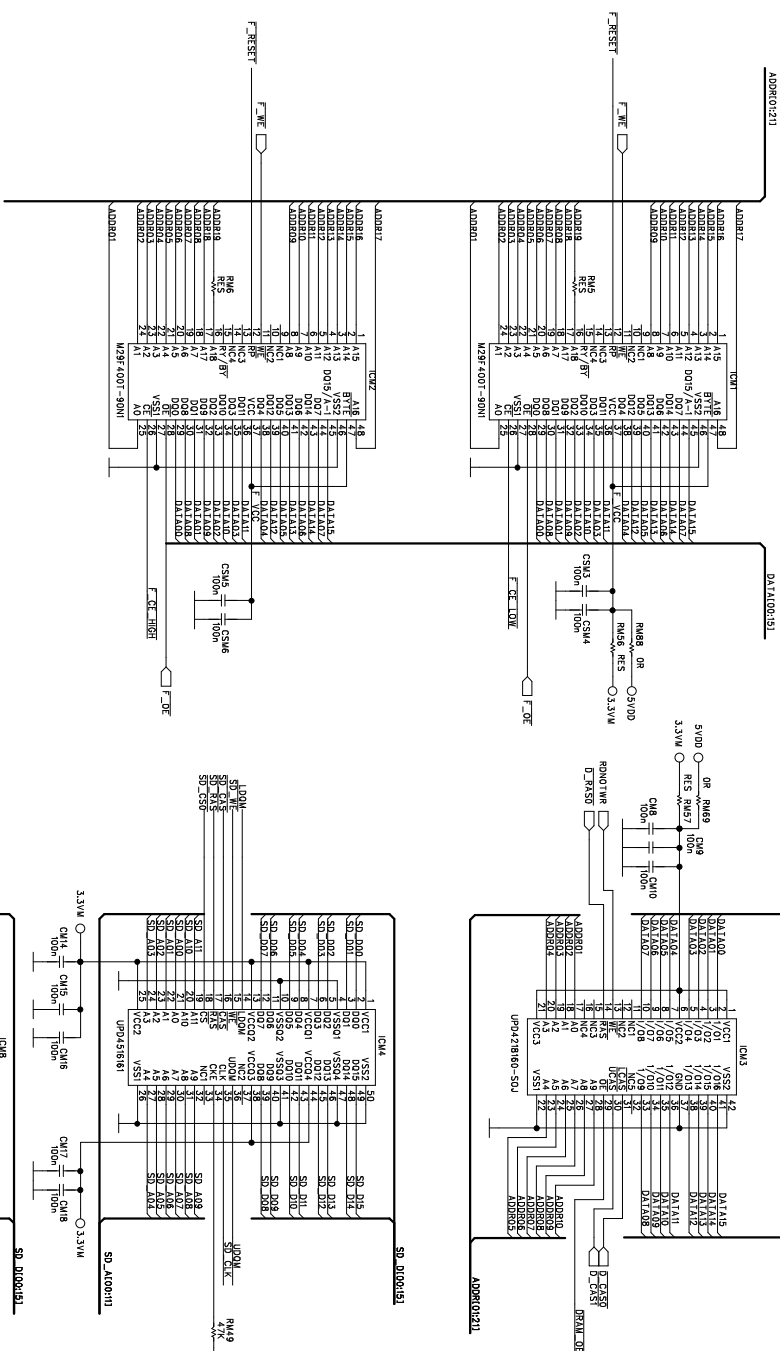
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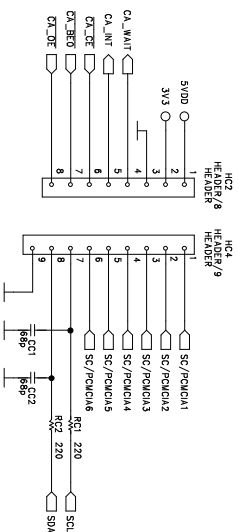
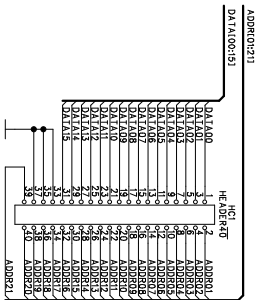


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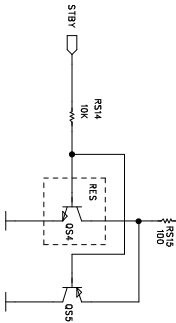
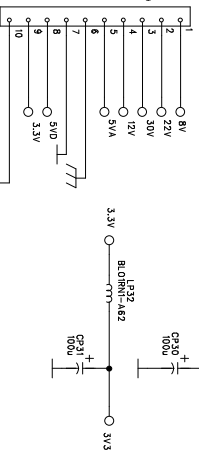
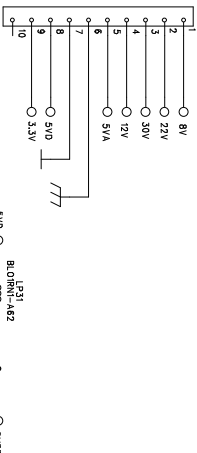


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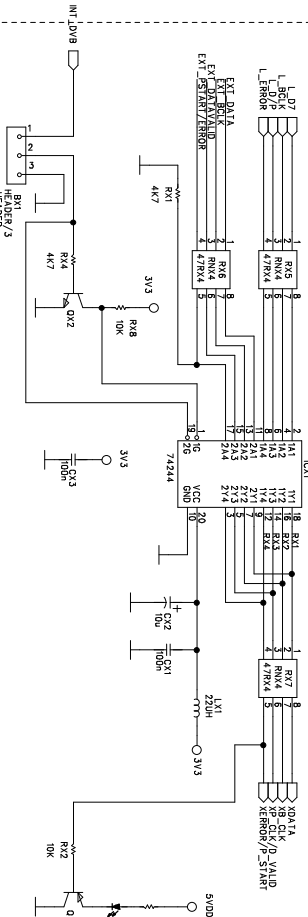
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PROVISION FOR PCMCIA INTERFACE



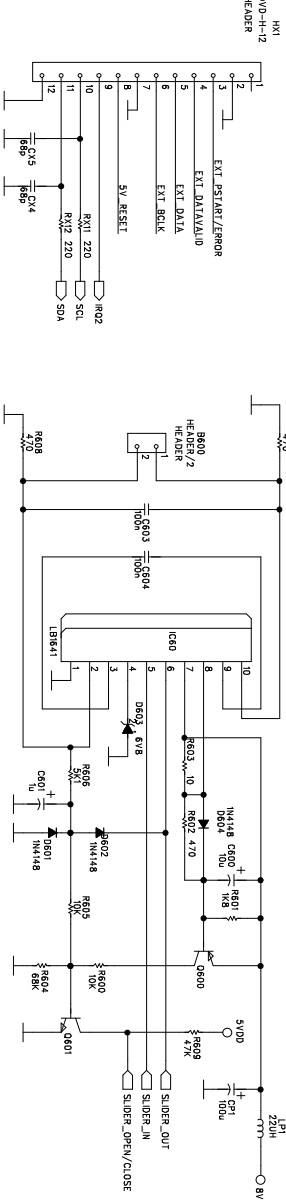
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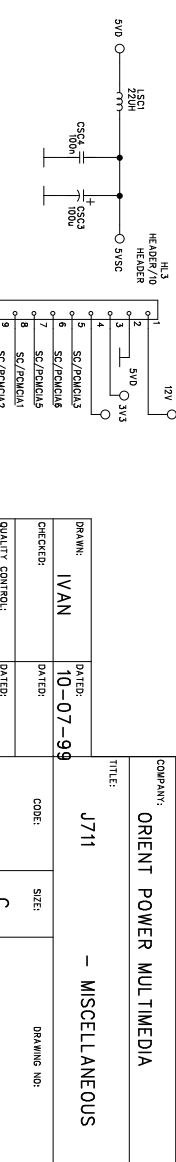
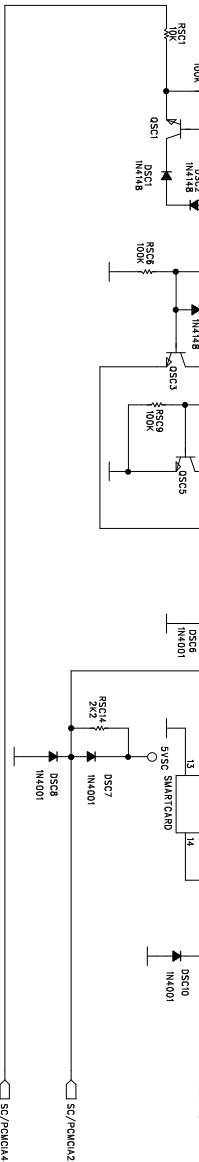
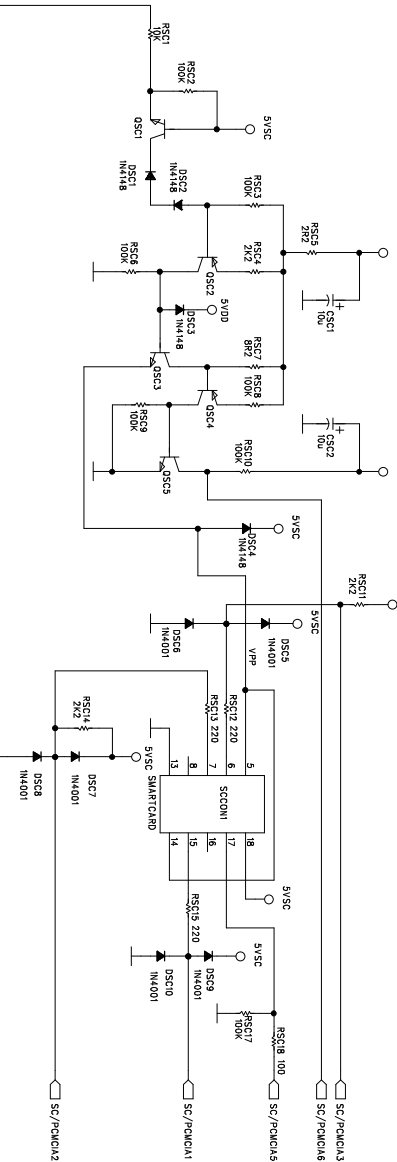
TRANSPORT STREAM MULTIPLEX



INTERFACE TO DVD FRONT-END



SMARTCARD INTERFACE



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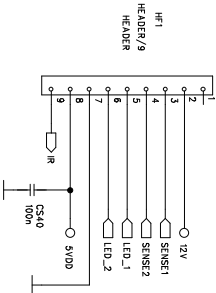
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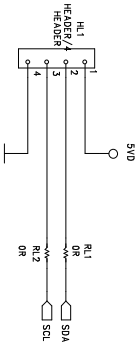
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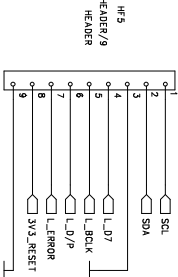
TO FRONT BOARD



I2C CONNECTOR



TO TUNER BOARD



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B

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D

A

B

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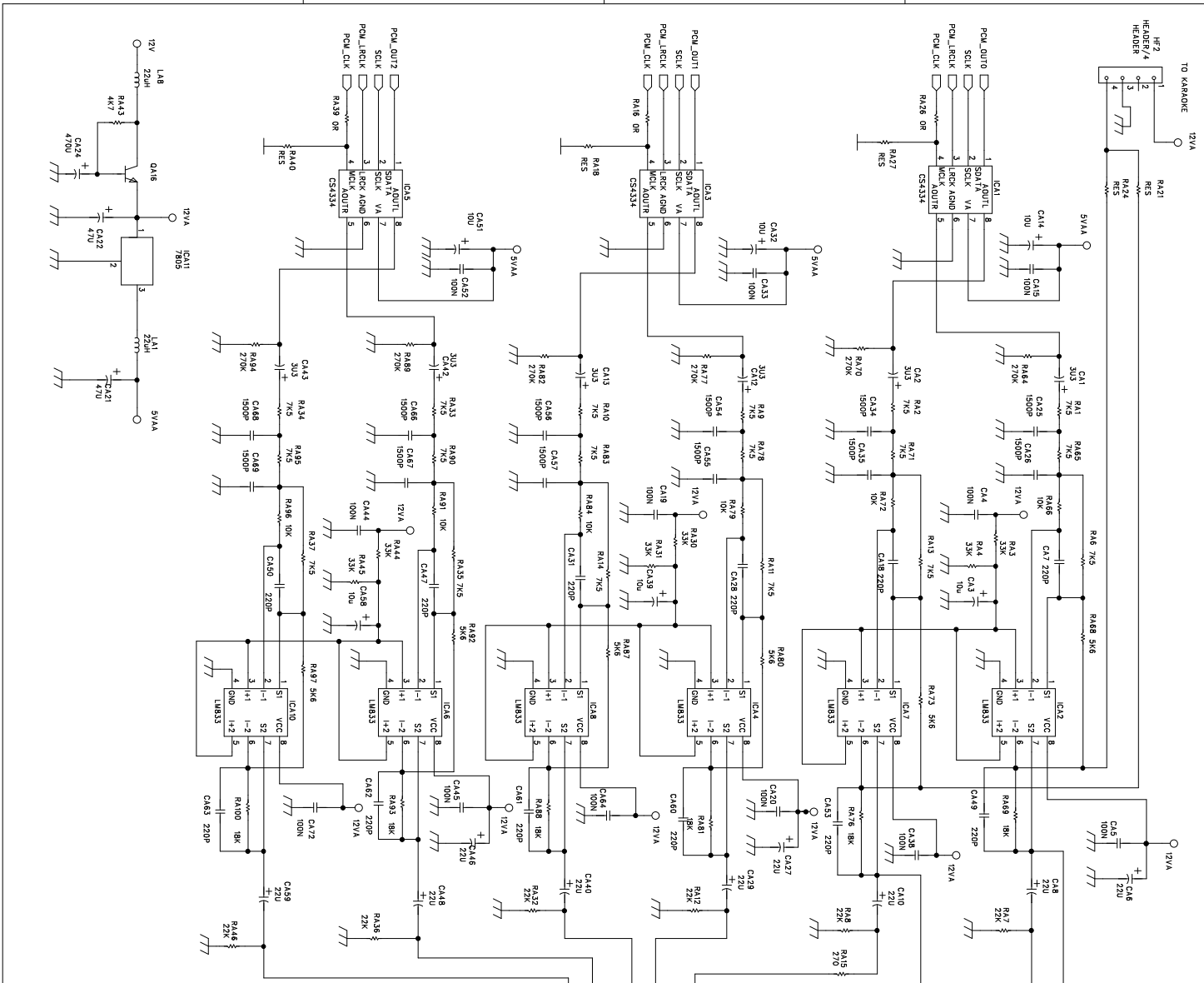
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COMPANY:
ORIENT POWER MULTIMEDIA

TITLE:
J711

— AC3 OUTPUT

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Circuit Description of J711/J700 DVD Player

1. Power Supply
 - 1.1. The AC power switcher U801 (TOP225Y) drive the fly-back mode transformer T801, it generate all the secondary DC voltage for both DVD loader and main board. It also provides –20Vdc and +12Vdc for the front panel VFD.
2. MCU & MPEG decoder
 - 2.1. The MCU and MPEG decoder were integrated into the ICS1 (STI5505).
 - 2.2. Firstly, the ICS3 (74HCU04) and XS1 (27Mhz) crystal generate the 27MHz clock. It provided the 27Mhz reference to the ICS1 pin 118, then the entire necessary clock signals were generated inside the ICS1.
 - 2.3. Transistor QS1, QS2, QS3 provide the reset signal to both DVD loader and ICS1.
 - 2.4. DVD data streams are coming from the HX1 connector, after pass through the buffer ICX1 (74HC244) it goes into ICS1 pin36 to pin39. The entire MPEG decode process will be done inside the ICS1.
 - 2.5. The Analog composite video is output from ICS1 pin 64.
 - 2.6. The Analog Y/C videos were output from ICS1 pin 62 and pin 63.
 - 2.7. The Analog RGB videos were output from ICS1 pin 55, pin 56 and pin 57.
3. Memory
 - 3.1. The memory system were consist of Flash ROM (ICM1 /ICM2), EDO DRAM (ICM3) and SDRAM (ICM4 / ICM8).
 - 3.2. At cool boot, the MCU ICS1 will access the Flash ROM that held the entire firmware inside.
 - 3.3. Then the variables and run time data will saved into the EDO DRAM.
 - 3.4. SDRAM were mostly used to store the MPEG picture and On Screen Display.
4. Video output circuitry
 - 4.1. The Composite video will be amplified by Transistor QV1 and filtered by CV9, CV10, it will be buffered by QV5, QV10 and QV4, and then goes into RCA jack and SCART connector.
 - 4.2. QV2 and QV3 will amplify the Y/C signals and then filtered by LV6 and LV8 before it goes to the SVHS connector P2.
 - 4.3. RGB signals will go through the HS6 connector to the SCART PCB. Then they will be buffered and amplified by QN1, QN2 and QN3.
5. Audio D/A and output circuitry
 - 5.1. ICS1 will provide the PCM clock from pin 43 and pin 45.
 - 5.2. PCM channel 0 data is on pin 44 (Main Left and Main Right)
 - 5.3. PCM channel 1 data is on pin 24 (Center and Sub-woofer)
 - 5.4. PCM channel 1 data is on pin 21 (Surround Left and Surround Right)
 - 5.5. All those signals were go into ICA1, ICA3, ICA5 for D/A conversion, then the analog audio signal will be filtered and amplified by ICA2, ICA7, ICA4, ICA8, ICA6 and ICA10.
 - 5.6. Mute signal is controlled by ICS1 pin199 and drive by QA5, QA2, QA7, QA6, QA9, QA8, QA11, QA10, QA13, QA12, QA15 and QA14.

Circuit Description of J711/J700 DVD Player

6. DVD Loader

- 6.1. The loader is a finish module, It powered by the power supply connector J803 and controlled by the main PCB HX1 connector.
- 6.2. The tray open/close motor is driven by IC60 (LB1641), ICS1 control the IC60 through SLIDER_IN, SLIDER_OUT, SLIDER_OPEN/CLOSE. It detects the driver current to sense the tray close action.

7. Front panel

- 7.1. The Front panel VFD is driven by the VFD controller UF3 (BU2872AK).
- 7.2. CPU controls the VFD driver through the serial bus VFD_CS, VFD_DATA and VFD_CLK. It does the entire key sensing and VFD display controls.
- 7.3. The VFD filament (Heater) voltages were provided from the oscillator and driver QF1 to QF4.

- End -

Parts list

PCB ASSY SCART BOARD SMD	8107110000025
BOTTOM CASE W/SHEILD PLAT	1107000048002
DIODE ZENER BZX55 6V8 1/2	2032689020027
DVD DOOR	1007000117101
DVD LOADER TVM501**DIGI**	4300501000002
EEPROM FIRMWARE SHARP R.0	7407110000102
FRONT LENS	1007000017101
FRONT PANEL	1007000007102
FRONT PANEL ASSY BRD*DVD*	8007000000002
IC 8M 3.3V 512X16 MULTI	2792900081861
IC AUDIO DUAL AMP LM833D	2770083301800
IC DRAM 1MX16 3.3V 42PIN	2725016061860
IC DRAM 1MX16 50PIN SMD	2725016001851
IC DRAM 1MX16 50PIN SMD	2725016001855
IC DRAM 1MX16 60NS 42PIN	2725016061846
IC DRAM 1MX16 SMD SOJ UT5	2725016061858
IC DRAM 1MX16 SMD SOP UPD	2725016001812
IC DRUM 1MX16 60NS 42PIN	2725016061847
IC DVD DEC CHIP ST15505	2795505001800
IC EEPROM 8K BIT 250NS SM	2723008251800
IC FL DRIVER SMD QFP44	2792872001823
IC FLASH DATA 3.3V SMD	2792900031815
IC FLASH MEMORY 5V SMD	2792900051815
IC FLASH MEMORY M29F400BT	2792900021800
IC FLASH MEMORY M29F400T	2792900011800
IC FLASH MEMORY MX29F400T	2792900041860
IC FLASH MEMORY SMD SOP	2792900001800
IC MOTOR DRIVER 7V 1.6A	2730070162045
IC REG 5V 0.1A TO 92	2730005010712
IC STEREO 24BIT 96KHZ 8P	2794334001853
IC SWITCHER TOP225Y	2792250000640
IC VOLT 5V 100MA TO 92	2730005010700
IC VOLT REFERENCE LM431	2794310000704
IC VOLT REFERENCE NJM431	2794310000714
IC VOLT REG 12V 1A	2730012011739
IC VOLT REG 12V1A NJM7812	2730012011714
IC VOLT REG 3.3V 1A	2730033011926
IC VOLT REG 3.3V 2A	2730033021917
IC VOLT REG 3.3V 3A	2730033031926
IC VOLT REG 5V 1A TO 220	2730005011926
IC VOLT REG 5V 2A TO 220	2730005021917
IC VOLT REG 5V 2A TO 220	2730005022017
IC VOLT REG 8V 1A TO 220F	2730008011314
INSTRUCTION BOOK	INSBKDVD110JEN
INSTRUCTION BOOK **DVD**	6107110004042
LEFT CAP	1007000097104
LOWER RIGHT KEY SET	1007000027113
LOWER SUPPLY PCBASSY*DVD*	8007000000001
MAINPCBASSY COMPLETE*DIG*	8007110000100
METAL LOGO PLATE	1107000098001
PCB ASSY FRNT PAN BRD SMD	8107000000002
PCB ASSY J700 LED BOARD	8007000000032
PCB ASSY J711 SMD 5.1,S	8107110000100
PCB ASSY J711 SMD 5.1,S	8107110000100
PCB ASSY SCART BOARD SMD	8107110000025
PCBASSY J711SCARTBORD*DVD	8007110000025
PHOTO COUPLER POWER ISO	2630000090216
POW BUT ADAPT NATURAL*DVD	1007000077102
PRESS KEY - EJECT	1007000027109
PRESS KEY LEFT	1007000027110
PRESS KEY RIGHT	1007000027111
PUSH BUTTON POWER **DVD**	1007000077103
REMOTE HAND SETS **DVD**	J711FRHS01
RIGHT CAP	1007000097105
ROTARY KNOB	1007000027114
SCART CONN 21 PIN SOCKET	3400000070091
SERVICE MANUAL	SMANDVD110
SW JOG SHUTTLE SRGPT0100	3561041090147
SW JOG SHUTTLE SRGPTJ0300	3561041090047
SW PUSH NO 2PIT SDKEA3	3501021190047
TOPCASE J100GALSHEET*DVD*	1107000031401
UPPER RIGHT KEY SET	1007000027112
VAC FLU DIAPLAY BT315NK	4143300000113
VAC FLU DIAPLAY BT319GNK	4143300000213
VFD DISPLAT HOLDER	1007000097106